

CLAIMS:

1. Method for handling data on a data storage apparatus (1) comprising a data storage medium (2), in particular for handling data on a disc drive (1) comprising a data storage disc (2), the medium having a user area (UA) and a spare area (16, SA, 22a, 22b) defined thereon,
- 5 wherein,
- upon detection of a defect (B) on the medium (2), in a first step the data assigned to the defect (B) are allocated into the spare area (SA, 16, 22a, 22b),
- characterised in that
- in a further step, information is provided about the size of a
- 10 contiguous free region (F) in the user area (UA), and
- the data allocated in the spare area (SA, 16, 22a, 22b) are at least partially re-allocated into the contiguous free region (F) in the user area (UA) if the size of the contiguous free region (F) exceeds or is equal to a determined threshold size.
- 15 2. Method as claimed in claim 1, characterised in that the information is provided by a host (7) connected to the apparatus (1) by an interface.
3. Method as claimed in claim 1 or claim 2, characterised in that the threshold size is determined in correlation with at least one logical consecutive sequence of the data
- 20 mapped in the spare area (16, SA, 22a, 22b).
4. Method as claimed in claim 1 or 2, characterised in that the threshold size is essentially equal to the size of the largest contiguous free region in the user area.
- 25 5. Method as claimed in one of the preceding claims, characterised in that the information is provided by a controller (6) comprised by the apparatus (1).
6. Method as claimed in one of the preceding claims, characterised in that a plurality of spare area arrays (SA, 22a, 22b) is provided and each of the arrays respectively is

assigned to essentially each of a plurality of format features, in particular a track (8) and in particular serves as a contiguous free region in the user area.

7. Method as claimed in one of the preceding claims, characterised in that the
5 data are re-allocated by slipping.

8. Method as claimed in one of the preceding claims, characterised in that the re-
allocation and re-mapping of data from the spare area (SA, 22a, 22b) to the user area (UA) in
the further step is repeated until all data of at least one logical consecutive sequence is re-
10 allocated in the contiguous free region (F) in the user area (UA).

9. Method as claimed in one of the preceding claims, using an error correction
code being based on physical block addresses (PBA), in particular instead of logical block
addresses (LBA).
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10. Method as claimed in one of the preceding claims, characterised in that defect
data are mapped or re-mapped to a preferred predetermined address area.

11. Method as claimed in one of the preceding claims, characterised in that a
20 protocol between the storage apparatus (1) and a host (7) records information on the re-
allocation of data, in particular on re-map-, -map- and slip-data.

12. Method as claimed in one of the preceding claims, being adapted to be done
on-the-fly, in particular by being essentially controlled solely by a storage apparatus
25 controller (6).

13. Method as claimed in one of the preceding claims, adapted to be implemented
in a de-fragmentation process, in particular by being at least partially controlled by a host (7)
during an occasional de-fragmentation process.
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14. Data storage apparatus (1) comprising a data storage medium (2), in particular
a disc drive (1) comprising a data storage disc (2) formatted in a predetermined format
architecture comprising a plurality of at least one format feature, in particular selected from
the group consisting of: zones, cylinders and tracks, and having a user area and a spare area

defined thereon, characterised in that the format architecture provides a plurality of spare area arrays, each of the spare area arrays being respectively assigned to essentially each of the plurality of the at least one format feature.

- 5 15. Data storage apparatus as claimed in claim 14, characterised in that the format architecture provides a plurality of spare area arrays (SA, 22a, 22b), wherein each of the spare area arrays (SA, 22a, 22b) are respectively assigned to essentially each of a plurality of tracks (8).
- 10 16. Data storage apparatus as claimed in claim 14 or 15 characterised in that the apparatus (1) further comprises a read/write-head (3), a drive to rotate the medium and a servo to move the head, a controller (6) having a control electronics, a microprocessor and a memory (RAM, ROM) and an interface for connecting the apparatus (1) to a host (7).
- 15 17. Apparatus for reproducing audiovisual information, comprising the data storage apparatus according to claim 14 - 16.